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Claims

X 1. A cellular immunogen for immunizing a host against the effects of the product of a target proto-oncogene, the overexpression of which target proto-oncogene is associated with a cancer, which cellular immunogen comprises allogeneic donor cells which have been transfected with at least one transgene construct comprising at least one transgene cognate to the target proto-oncogene and a strong promoter to drive the expression of the transgene in the transfected cells, the transgene encoding a gene product which induces host immunoreactivity to host self-determinants of the product of the target proto-oncogene gene.

X 2. An immunogen according to claim 1 wherein the transgene comprises

wild-type or mutant retroviral oncogene DNA; or

wild-type or mutant proto-oncogene DNA of a species different from the host species.

3. An immunogen according to claim 1 or 2 wherein the transfected cells are non-dividing.

4. An immunogen according to claim 2 wherein the transgene comprises mutant retroviral oncogene DNA or mutant proto-oncogene DNA.

5. An immunogen according to claim 4 wherein the mutant DNA is nontransforming.

6. An immunogen according to claim 5 wherein the mutant DNA comprises a deletion mutation in a region of said DNA which is essential for transformation.

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7. An immunogen according to claim 6 wherein the donor cells have been transfected with a plurality of transgene constructs, each construct encoding a different deletion mutation.

8. An immunogen according to any preceding claim wherein the donor cells have been transfected with a transgene cognate to a target proto-oncogene selected from the group of proto-oncogenes consisting of AKT-2, c-erbB-2, MDM-2, c-myc, c-myb, c-ras, c-src and c-yes.

X 9. An immunogen according to any preceding claim wherein the donor cells comprise fibroblasts or bone marrow-derived antigen-presenting cells.

X 10. A method for preparing a cellular immunogen for immunizing a host against the effects of the product of a target proto-oncogene, the overexpression of which target proto-oncogene is associated with a cancer, the method comprising:

transfecting allogeneic donor cells with at least one transgene construct comprising at least one transgene cognate to the target proto-oncogene and a strong promoter to drive the expression of the transgene in the transfected cells, the transgene encoding a gene product which induces host immunoreactivity to host self-determinants of the product of the target proto-oncogene gene.

X 11. A method according to claim 11 wherein the transgene comprises

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wild-type or mutant retroviral oncogene DNA; or
wild-type or mutant proto-oncogene DNA of a species
different from the host species.

12. A method according to claim 10 or 11 wherein the transfected cells are non-dividing.

13. A method according to claim 11 wherein the transgene comprises mutant retroviral oncogene DNA or mutant proto-oncogene DNA.

14. A method according to claim 13 wherein the mutant DNA is nontransforming.

15. A method according to claim 14 wherein the mutant DNA comprises a deletion mutation in a region of said DNA which is essential for transformation.

16. A method according to claim 15 wherein the donor cells are transfected with a plurality of transgene constructs, each construct encoding a different deletion mutation.

17. A method according to any of claims 10-16 wherein the donor cells comprise fibroblasts or bone marrow-derived antigen-presenting cells.

18. A method according to any of claims 10-17 wherein the transgene is cognate to a target proto-oncogene selected from the group of proto-oncogenes consisting of AKT-2, c-erbB-2, MDM-2, c-myc, c-myb, c-ras, c-src and c-yes.

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19. An immunogen according to any of claims 1-9, for use
in medicine.

20. The use of an immunogen according to any of claims
1-9 in the preparation of an anti-cancer vaccine.